FOOD TECHNOLOGY

Published Monthly by

The Institute of Food Technologists

Volume 4 | July, 1950 | Number 7

EDITOR

DR. Z. I. KERTESZ
Division of Food Chemistry and Technology
New York State Agricultural Experiment Station
Geneva, New York

Associate Editors

Ernest C. Crocker, Herman W. Dorn, J. Avery Dunn, Max S. Dunn, Charles N. Frey, Warren H. Goss, J. L. Heid, M. L. Laing, Prescott R. Lloyd, Aksel G. Olson, Bernard L. Oser, D. F. Sampson, H. A. Schuette, G. C. Scott, Paul F. Sharp, George F. Stewart, C. R. Stumbo, and Harry W. von Loesecke.

Publication Office

Published by the Institute of Food Technologists and printed by The Garrard Press, 119-123 West Park Avenue, Champaign, Illinois.

Subscription Rates

Subscriptions are entered for all members of the Institute of Food Technologists. The cost is included in the annual dues.

Non-members: domestic, $7.50 per year; foreign, $8.50 per year.

Single copies and back numbers: domestic, $1.00 each; foreign, $1.15.

Claims

Claims for copies lost in the mails must be received within thirty days (ninety days, foreign) of the date of issue. Notice of change of address must be received two weeks before date of issue.

Correspondence

Editorial: Address all manuscripts, proofs, etc., and correspondence concerning this to the EDITOR.

Non-Member Subscriptions, Back Volumes, Single Copies, and Reprints: FOOD TECHNOLOGY, 119-123 West Park Ave., Champaign, Ill.

Members Subscriptions; Changes of Address, etc.: THE INSTITUTE OF FOOD TECHNOLOGISTS, 176 W. Adams St., Chicago 3, Ill.

Advertising Manager: Harley L. Ward, 360 N. Michigan Ave., Chicago 1, Ill.

Eastern Representative: Duncan Macpherson, 700 S. Washington Square, Philadelphia 6, Pa.

Mailing Permit

Entered as second-class matter February 25, 1947, at the post office at Champaign, Illinois, under the act of August 24, 1912.

Copyright, 1950,
by the Institute of Food Technologists
Printed in U. S. A.

CONTENTS

EDITORIAL
FOOD TECHNOLOGY CURRICULA 275

REACTION OF AGE GROUPS TO ORGANOLEPTIC TESTS. William Dowell Baten 277

THE pH AND TOTAL ACIDITY OF RAW AND CANNED PIMIENTOS. Ruth H. Sane, John J. Powers, R. E. Morse, and W. C. Mills 279

SCORING TECHNIQUES FOR SULFITED FOODS. Mildred M. Boggs, and Alice Collings Ward 282

BLUEBERRY JUICE. F. B. Chandler, and M. E. Highlands . . 285

DEHYDROFROZEN PEAS. William F. Talburt and R. R. Legault 286

SORBIC ACID AS INHIBITOR OF SCUM YEAST IN CUCUMBER FERMENTATIONS. Guy Frank Phillips and J. Orvin Mundt 291

DEHYDROACETIC ACID A NEW MICROBIOLOGICAL INHIBITOR. Paul A. Wolf 294

A USE OF ASCORBIC ACID IN FROZEN HOMOGENIZED MILK. R. B. Anderson, C. W. Betzold, and W. J. Carr 297

INDUSTRIAL AND LEGAL VIEWPOINTS
MARINE TRANSPORTATION OF PERISHABLE FOOD PRODUCTS IN REFRIGERATED SHIPS. Wm. L. Keller 301

SELECTED ABSTRACTS *2*

REGIONAL NEWS
MEETING OF THE COUNCIL *14*
BUSINESS MEETING *20*

NOTES AND LETTERS *10*

Authors of papers intended for publication in FOOD TECHNOLOGY should request from the Editor's office a copy of a booklet, tittled "Suggestions to Authors," and see that their papers are in the form specified therein before they are sent to the editor.

The Institute of Food Technologists assumes no responsibility for statements in contributed articles appearing in FOOD TECHNOLOGY. Editorials present only opinions of the writers and do not necessarily reflect policies of the Institute of Food Technologists.

Abstracts

(Continued from page 6)

FOOD PRODUCTS

BAKING AND BAKERY PRODUCTS

191J. Studies of protein foams obtained by bubbling.

THUMAN, W. C., BROWN, A. G., AND MCBAIN, J. W. *J. Am. Chem. Soc., 7,* 3129-35 (1949).

The foaming of protein solutions is of theoretical interest, and also has wide applications in the baking industry. This paper states that: Proteins produce maximum foam somewhat on the acid side of the isoelectric point. This is shown by single bubbles and by frothing for egg albumin (pH 4) and protamine (pH 10). This maximum is enhanced by dissolving the egg albumin in 10^{-2} M acetic acid. If egg albumin is merely dispersed to a somewhat turbid "solution" at pH 5, it does not foam in the range pH 7 to 11. If first dissolved in 10^{-2} M alkali (potassium hydroxide or barium hydroxide) it foams freely in the alkali range. Alkali earth ion or salt greatly promotes foaming in the alkali range, but may minimize it on the acid side.

COFFEE

192J. Acceptance of soluble coffee.

LOCKHART, E. E., AND GAINER, J. M. *Food Res., 14,* 511-15 (1949).

Results indicated a limited "between-brand" preference in soluble coffee; among the better brands of both pure soluble coffee and soluble coffee product, no brand preference was demonstrated. The more acceptable brands of soluble coffee product tend to be preferred to the more acceptable brands of pure soluble coffee. The better brands of both pure soluble coffee and soluble coffee product are about equally desirable as regular dripolator coffee. A "paired-comparison" procedure was employed. Unselected staff members and students at M. I. T. acted as judges.

FATS AND OILS

193J. Polyphosphates as synergistic antioxidants.

WATTS, B. M. *J. Am. Oil Chem. Soc., 27,* 48-51 (1950).

The antioxidant activities of a number of synergists were measured in aqueous fat system at pH values. A group of polyphosphates not previously investigated was most promising of the synergists tried. Orthophosphates were ineffective, but antioxidant activity increased from pyrophosphate through tri and 'heptaphosphate' and finally to the most active 'hexametaphosphate' and Maddrell's salt. Citrate compared with tri-phosphate and pyrophosphate in antioxidant activity; all other synergists tried were less effective than pyrophosphate. Relatively large molar concentrations of orthophosphates interfered markedly with the antioxidant activity of citrate and the higher polyphosphates. The polyphosphates also inhibited rancidity in the presence of added copper and iron but did not eliminate the catalytic effect of the metals. Antioxidant activity of the phosphates in dry fats did not parallel their activity in aqueous fat systems. Properties of polyphosphates which might affect their use as antioxidants in foods are discussed.

MEAT AND POULTRY

194J. Thiamine, riboflavin, and niacin content of turkey tissues as affected by storage and cooking.

COOK, B. B., MORGAN, A. F., AND SMITH, M. B. *Food Res., 14,* 449-58 (1949).

Total loss of weight in cooking was always less in fresh than in stored birds, and less in larger than in smaller birds. Some off-flavors were detected in both fresh and stored turkeys fed rations containing 13 and 18.5% fish meal, and rancidity was noted in several samples from birds fed tocopherol-free diets for several days before slaughter. Vitamin distribution was similar to that found in chicken tissues. Thiamine and riboflavin were more concentrated in leg muscles, and niacin in breast muscles. Except for the liver and breast, which had 10 to 15 mg. %, all turkey tissues contained about the same amount of niacin, four to seven mg. %. Thiamine was more concentrated in heart than in the liver. Riboflavin was found in greatest amount in the liver and heart, one to three mg. % in leg muscle, 0.12 to 0.18; and in breast, 0.09 to 0.11. No significant loss of vitamins occurred in three to nine months' storage at —23° C., except for thiamine in breast and leg muscles of one lot of turkeys. Loss of thiamine in cooking was large, 67 to 82 percent in leg and skin, 38 to 43 percent in breast meat. Riboflavin and niacin suffered 20 to 30 percent losses. Loss of vitamins due to cooking was greater in the roasted turkeys than in the broiled chickens previously studied.

195J. Swiss steaks into freezer and out.

TINKLIN, G. L., et al. *J. Am. Diet. Assn., 26,* 30-3, Jan., 1950.

Paired steaks from Grade A beef rounds cut 1 inch thick, were double wrapped in locker paper, quick frozen, and stored at —10° F. until ready for braising. They were removed from the locker. With increased length of storage time, the total desirability of the aroma, fat, and lean became less, although the scores did not show a consistent decrease. All reheating methods used in this study proved to be desirable from the standpoint of palatability. Reheating in the double boiler resulted in the least change in weight and gave palatability scores comparable to those of the freshly cooked meat, but required the longest time.

VEGETABLES

196J. Germicidal detergents are not needed for washing fresh-picked cucumbers.

FABIAN, F. W., AND ORLOFF, M. D. *Food Ind., 22,* 256-9 (1950).

Tap water or 30-deg.-salometer brine give as effective results as water containing either of the two quarternary ammonium compounds—Emulsept and Roccal. The germicidal detergents effected no greater reduction in total microorganism plate count.

197J. Potato storage and quality of french fries. I. Katahdin.

ALEXANDER, L. M., SCHOPMEYER, G. E., AND ANDERSON, R. B. *Am. Potato J., 26,* 439-45 (1949).

Katahdin potatoes grown in Maine in 1945 and placed in storage in a potato house in Maryland during October of that year were withdrawn at intervals during February and March, 1946, sorted out into 3 lots according to degree of mealiness by a salt-density method, conditioned at 70 to 75° F. (21 to 24° C.) for periods varying from 1 to 91 days, tested for content of reducing sugars by the picric acid coloration method, and french fried. The yield and edible quality of the french fries were determined. After conditioning for one day, potatoes were excessively high in reducing sugars and produced poor french fries. As the period of conditioning was increased, the content of reducing sugars decreased gradually but was not restored to normal. The mealier the potatoes, the more rapidly they desugared, and the higher the yield and the better the edible quality of the french fries. With adequate conditioning, mealy potatoes produced french fries which were rated very good to excellent, and slightly-to-medium mealy, good to very good. Non-mealy potatoes "recovered" less successfully and produced only fair to good french fries. Results suggested that as a conservation measure for Katahdin potatoes which are to be stored at low temperature for later use in french frying, it appears desirable to store mealy rather than non-mealy tubers.

RECENT PATENTS

198J. Method of sterilizing and preserving.

BRASCH, A. Assignor to Electronized Chemicals Corporation, *23,* 195 (Reissue). Feb. 7, 1950.

Method of sterilizing a substance (such as a footstuff or a drug), without developing harmful side effects by bombarding the same with high speed electrons of a velocity equivalent to more than one million volts during at least one very short time period lasting less than 10^{-4} of a second.

199J. Method of treating foodstuffs.

SPENCER, P. L. Assignor to Raytheon Mfg. Co., 2,495,429, Jan. 24, 1950.

In the method of treating foodstuffs, those steps which include: generating electromagnetic wave energy of a wavelength falling in the microwave region of the electromagnetic spectrum;

(Continued on page 12 following technical papers)

As just ONE of the features of
this new APPLE FLAVOR...
Its effectiveness is largely undiminished after processing at high temperatures.
IN ADDITION:
The clear, unusually fresh taste of apple it provides reaches its fullest effect in the finished product.
It is a tremendously concentrated material—developed expressly for use in the large scale production of foods and beverages of high quality.
This material is available today only because of our continuing, advanced research on the chemical composition of natural products.
FIRMENICH & CIE
SUCCESSEURS DE
CHUIT, NAEF & CIE
GENEVE SUISSE
FIRMENICH & CO.
250 WEST 18th STREET, NEW YORK 11, N.Y.
CHICAGO OFFICE: 612 NORTH MICHIGAN AVENUE
IN CANADA: CARAMEED, LTD., 350 WALLACE AVE., TORONTO
GENEVA, SWITZERLAND · · · PARIS, FRANCE

Welcome to New Journal and to New Editor

The resignation, submitted in January, 1950, by your editor, was accepted by the Council, in session on May 21st in Chicago, Illinois. By action of the Council in the same session, Dr. Z. I. Kertesz of New York Agricultural Experiment Station, Geneva, New York, was chosen to be editor not only of FOOD TECHNOLOGY but also of FOOD RESEARCH. The latter journal, throughout its existence of many years the outstanding journal in its field, published by the Garrard Press and edited by Dr. Fred W. Tanner, has become an official publication of the Institute of Food Technologists. The Institute is pleased to call its own this highly regarded instrument for the spread of scientific information on foods.

Within the next month, the transfer of the functions of the editor's office for FOOD TECHNOLOGY will be completed from the New Jersey Agricultural Experiment Station in New Brunswick to the New York Agricultural Experiment Station in Geneva and the August issue will be produced under the guidance of the new editor.

The Institute is to be highly congratulated on having Dr. Kertesz as editor of its journals. Coming to Geneva in 1929 from the University of Budapest, Dr. Kertesz has achieved distinction in the fields of plant biochemistry and enzyme chemistry. He has published widely and has now in press a comprehensive book on pectins, a subject on which he is an outstanding authority.

The outgoing editor welcomes the new editor and extends sincere wishes for an experience for him as pleasant as was my own experience which is just closing. Success will surely crown the efforts of Dr. Kertesz. Should any assistance be needed, it will be gladly extended.

C. OLIN BALL.

Notes and Letters

Mineral Content of Tomatoes Grown with Different Types of Mulches

Tomatoes are grown extensively in this area of Massachusetts. Practically every home garden contains one or more varieties, and a large tonnage is produced by the commercial market gardeners. As a result, there has been a constant demand for additional information regarding cultural procedures that will give a profitable yield of tomatoes of high food value. The present investigation deals with the influence of mulching on the mineral content of tomatoes. The possible significance of this program and the principal experimental conditions are given in a previous paper *(2)*. Twelve plots were provided for this study—three mulched plots and a control plot, with two replicates of each. The mulches, (a) horse manure, (b) rye straw, and (c) Servall—shredded sugar cane stalks—were applied three inches deep as soon as the standardized strain of Rutgers-Stokes tomato plants were well-established. All plots received a 5-8-7 commercial fertilizer at the rate of 2000 pounds per acre. The tomatoes were grown on a Merrimac fine sandy loam soil that has been described previously *(3)*. During the 89-day growing season, there were 680 hours of bright sunshine, 12 inches of rainfall, and the temperature ranged from 41° to 100° F. Twelve typical tomatoes from each of the twelve plots were disintegrated in a Waring Blendor to a homogenous liquid and assayed for calcium, magnesium, manganese, nitrogen, phosphorus, and potassium by the A.O.A.C. methods *(1)*.

The average amounts of calcium per 100 g. (dry basis) were 203 mg., 186 mg., 218 mg., and 193 mg. for the control, manure, straw, and Servall plots, respectively. The totatoes grown on the straw plots contained the largest amount of magnesium, 276 mg. per 100 g., which slightly exceeded 268 mg. and 254 mg. for the control and manure plots and was larger than the 176 mg. for the Servall plots. Similar amounts of manganese and nitrogen were found in the tomatoes from the experimental and control plots, but tomatoes produced on the plots mulched with horse manure contained more phosphorus and potassium than those grown on the control, straw, or Servall plots. The

(Continued on page 20)

GUARD the critical point where milk enters the dairy to be processed. Here, samples from each farm are inspected with the aid of Spencer Microscopes and Colony Counters so that no single batch can contaminate the entire output.

Be sure your laboratory has modern, efficient equipment to match the high standards set elsewhere in your dairy. New Spencer Microscopes offer many advantages to help your technicians do a thorough job—improved optical performance, convenient adjustments, newly-designed attached light sources if desired. The new Spencer Darkfield Colony Counter has improved illumination that increases counting accuracy and reduces operating fatigue.

For complete information about Spencer Optical Instruments,
write Dept. G190.

American Optical
COMPANY

INSTRUMENT DIVISION • BUFFALO 15, NEW YORK

Makers of Precision Optical Instruments for over 100 Years

Abstracts

(Continued from page 8 preceding technical papers)

concentrating and guiding said wave energy within a restricted region of space and exposing the footstuff to be treated to the energy so generated for a period of time sufficient to cook the same to a predetermined degree.

200J. Process of neutralizing pectinic acid.

OWENS, H. S., MCCREADY, R. M., AND MACLAY, W. D. Assignors to the United States of America, 2,495,756, Jan. 31, 1950.

A process of increasing the solubility of a low methoxyl pectinic acid comprising contacting said low-methoxyl pectinic acid in the solid state with gaseous ammonia as a neutralizing agent at room temperature for from 30 seconds to 10 minutes, whereby said acid is neutralized.

201J. Low-methoxyl polyvalent metal pectinate fibers.

OWENS, H. S., AND LOTZKAR, H. Assignors to United States of America, 2,495,757, Jan. 31, 1950.

An artificial fiber having a dry tensile strength not less than about 20,000 lbs. per sq. in. cross section comprising essentially a filament of a polyvalent metal salt of a pectinic acid having a methoxyl content of 3 to 7.9%.

202J. Processing of pineapple juice.

EGUCHI, G. M., AND WELLS, C. H. Assignors to Hawaiian Pineapple Co., Ltd., 2,496,202, Jan. 31, 1950.

Method of treating a raw pineapple juice which comprises introducing minute gas bubbles into a body of the juice, maintained at a temperature above the coagulating temperature of albumin but below the boiling temperature of the juice, at a point below the surface of the body while agitating the body, the agitation being confined substantially to the area of gas introduction, and recovering a froth concentrate of albumin, fruit oil and waxes from the surface of the body.

203J. Process of drying fruit or vegetable materials containing added methyl cellulose.

EDDY, C. W. Assignor to the United States of America, 2,496,278, Feb. 7, 1950.

In the process of preparing free-flowing powders, flakes, and granules by drying fruit and vegetable juices, concentrates, pulps, purees, the step which comprises adding methyl cellulose as a drying aid to the material to be processed and then drying the combined methyl cellulose and material.

204J. Machine for sizing and cleansing asparagus tips.

BELLATO, F. A. Assignor to Bartolomeo Del Carlo, 2,496,516, Feb. 7, 1950.

In a machine of the character described, an endless conveyor, a container pivotally supported on the conveyor, a cover member hingedly secured to the container, means normally retaining the cover in closed position, means actuated during movement of the container for positioning it horizontally, means for momentarily opening the cover to permit a bunch of asparagus to be placed in the container with the tip ends pointing in one direction, means for closing the cover after insertion of the asparagus, a gage plate in the container adjacent the tip ends, means for changing the position of the container from a horizontal to a vertical position with the tip ends of the asparagus lowermost, means for simultaneously imparting a vertical and lateral jolting movement to the container to cause the asparagus to settle until the tip ends contact the gage plate, means for directing a spray of water downwardly through the asparagus to wash the same while they are subjected to the vertical and lateral jolting movement, means for returning the container to a horizontal position, means for cutting off the projecting butt ends of the asparagus, means for discharging the sized asparagus, and means for maintaining the conveyor in continuous movement while the foregoing operations are taking place.

205J. Fortifying feeds.

MELNICK, D. Assignor to Astrol Products, Inc., 2,496,634, Feb. 7, 1950.

A composition for use as a vitamin supplement to furnish the fat-soluble factors in fortifying feeds which comprises in combination: a finely divided base of defatted, enzyme-inactivated soy having distributed there through discrete particles of a high melting physiologically available, edible fat embodying a fat-soluble vitamin, the said fat having a melting point ranging from about 52° C. to about 58° C.

206J. Process for preserving rice.

HARA, T. 2,495,001, Jan. 17, 1950.

The process of preserving rice comprising soaking the rice in a solution of water, salt and sugar, and edible oil for a predetermined period of time at a temperature of approximately 70° F. in an unsealed receptacle, gradually heating the unsealed receptable containing the rice and solution, and cooking the same for a predetermined period of time under steam pressure, after which the pressure is released and the receptacle sealed.

207J. Process for the treatment of masses containing chocolate.

NORDENSKJOLD, T. MALMO, AND HOLMQUIST, K. S. 2,496,557, Feb. 7, 1950.

In a process for the improvement of chocolate masses which includes a conching treatment of such masses, the step which comprises subjecting such masses to the influence of mechanical oscillations with a frequency of the order of at least 15 kilocycles per second.

208J. Gingerbread mix.

SALO, P. W., AND HUBER, L. J. Assignors to General Mills, Inc., 2,496,678, Feb. 7, 1950.

The process of preparing a gingerbread premix which comprises drying flour to a moisture content not substantially in excess of 7%, concentrating molasses to a moisture content within the approximate range of 4% to 10%, mixing the concentrated molasses and the dried flour and thoroughly incorporating the molasses in the flour.

209J. Process of preparing C-vitaminized baking products.

SEEDER, W. A. 2,497,035, Feb. 7, 1950.

A process of producing baked food products enriched in vitamin C for human nutrition, wherein a dough predominantly of cereal flour is prepared and baked to obtain the products, which comprises incorporating water into the dough in a limited amount such that the baked products contain not more than 12% of moisture by weight, incorporating ascorbic acid in concentrated form uniformly into the dough in an amount exceeding 10 mg. per 100 g. of dough, and baking the prepared dough to obtain dry baked products containing in a stable state at least 10 mg. of ascorbic acid per 100 g. of product.

210J. Method for producing oil and meal from fish offal.

NOTEVARP, O. Assignor to Aktieselskapet Stord., 2,497,367, Feb. 14, 1950.

Method of producing fishmeal and oil from fish comprising reducing the moisture content of the fish to the range of 40 to 55% of moisture, pressing the fish material after proper heating to remove a liquid containing the oil and then drying the pressed fish residue.

211J. Flatfish filleting machine.

MEISSNER, C. 2,497,554, Feb. 14, 1950.

In a flatfish slicing machine, the combination of a pair of vertically disposed circular knives positioned in vertical alignment with each other having their edges in slight spaced relation, means resiliently tending to force said circular knives toward each other when in use, a second pair of circular knives horizontally disposed in slight spaced relation to each other, and resilient means engaging and supporting said second knives parallel to the rotating axis thereof permitting the angular deflection of said second circular knives axially of their axes.

212J. Carbohydrate preservative.

BRIED, E. A. Assignor to Hercules Powder Company, 2,497,579, Feb. 14, 1950.

A new composition of matter comprising a carbohydrate and a preservative therefor selected from the group consisting of a stabilized rosin amine and the salts thereof, said preservative being present in an amount within the range of about 0.25 and 10% of the wt. of said carbohydrate.

(Continued on page 15)

Institute of Food Technologists

The Professional Society of Food Technologists

PAUL F. SHARP, *President*
University of California
College of Agriculture
Berkeley, California

CHARLES N. FREY, *President-Elect*
Standard Brands, Inc.
595 Madison Avenue
New York 22, New York

PHILIP K. BATES, *Treasurer*
Riker Laboratories, Inc.
P. O. Box 3157
Terminal Annex
Los Angeles 54, California

CHARLES S. LAWRENCE, *Executive Secretary*
176 W. Adams St.
Chicago 3, Illinois

Councilors-at-Large

TERMS EXPIRE 1951: A. K. Balls, J. A. Dunn, F. W. Fabian, H. D. Lightbody, H. W. Vahlteich.
TERMS EXPIRE 1952: R. Adams Dutcher, H. R. Kraybill, E. M. Mrak, Aksel G. Olsen, Carl S. Pederson.

Regional Section Chairmen, Secretaries and Councilors

CHICAGO, No. 1: Chairman, R. A. Isker. Secretary, O. G. Braun, American Can Co., Maywood, Ill. Councilors, B. S. Clark, L. A. Hall, R. A. Isker, G. C. North, B. M. Shinn.

NORTHERN CALIFORNIA, No. 2: Chairman, E. E. Jacobs. Secretary, R. D. McKirahan, American Can Co., 20th and 3rd Sts., San Francisco, Calif. Councilors, R. N. Berry, E. L. Mitchell, E. M. Mrak, L. G. Petree.

NORTHEAST No. 3: Chairman, Newton R. Cole. Secretary, Charles H. Shackelford, Great Atlantic & Pacific Tea Co., 151 Northern Ave., Boston, Mass. Councilors: Ernest C. Peakes, H. P. Bowra, William B. Esselin, Jr.

SOUTHERN CALIFORNIA, No. 4: Chairman, L. B. Rockland. Secretary, Margaret G. Morehouse, Dept. of Biochemistry and Nutrition, Univ. of So. Calif., Los Angeles 7, Calif. Councilors, M. S. Burns, M. S. Dunn, A. N. Prater.

ST. LOUIS, No. 5: Chairman, F. A. Linde. Secretary, Bonnie Britt, Ralston Purina Co., 835 S. 8th St., St. Louis 2, Mo. Councilor, E. V. Nay.

NEW YORK, No. 6: Chairman, Stephen, L. Galvin. Secretary, A. A. Schaal, Good Housekeeping Bureau, 57th St. and 8th Ave., New York 19, N. Y. Councilors: R. T. Bohn, R. F. Light, C. A. Shillinglaw, Bernard L. Oser.

FLORIDA, No. 7: Chairman, W. R. Roy. Secretary, Fred W. Wenzel, Jr., Citrus Experiment Station, Lake Alfred, Fla. Councilor, D. W. Riester.

WESTERN NEW YORK, No. 8: Chairman, Domenic DeFelice. Secretary, W. S. Conway, Jr., Richardson Corp., 169 Lyell Ave., Rochester, N. Y. Councilor, W. D. Pheteplace.

GREAT LAKES, No. 9: Chairman, James C. Sanford. Secretary, L. J. Minor, Huron Milling Co., Harbor Beach, Mich. Councilors, Roy E. Marshall, Ray B. Wakefield.

PHILADELPHIA, No. 10: Chairman, E. Everett Meschter. Secretary, R. C. Bucher, Frank H. Fleer Corp., 10th and Somerville Sts., Philadelphia, Pa. Councilors, J. J. Sampey, R. G. Foster.

MARYLAND, No. 11: Chairman, Maurice Seigel. Secretary, Edgar G. Heyl, 9 W. Chase St., Baltimore 1, Md. Councilors, A. H. Warth, H. Walter Kuhl.

PUGET SOUND, No. 12: Chairman, H. C. Douglas. Secretary, Max Patashnik, Libby McNeil & Libby, P. O. Box 902, Seattle 9, Wash. Councilor, W. L. Haley.

AMES, No. 13: Chairman, W. H. Montgomery. Secretary, R. G. Tischer, Agr. Exp. Station, Iowa State College, Ames, Iowa. Councilor, George F. Stewart.

MOHAWK VALLEY, No. 14: Chairman, John Fairing. Secretary, Ruth Goodemote, Beech-Nut Packing Co., Canajoharie, N. Y. Councilor, W. A. Brittin.

OHIO VALLEY, No. 15: Chairman, H. D. Brown. Secretary, Dorothy Culler, Ohio State University, Horticulture Bldg., Columbus, Ohio. Councilor, N. J. Volle.

OREGON, No. 16: Chairman, J. Spencer George. Secretary, C. E. Samuels, Dept. of Food Technology, Oregon State College, Corvallis, Ore. Councilor, E. H. Wiegand.

DIXIE, No. 17: Chairman, John J. Powers. Secretary, T. W. Kethley, Engineering Experiment Station, Georgia Institute of Technology, Atlanta, Ga. Councilor, J. G. Woodroof.

TEXAS, No. 18: Chairman, W. C. Scott. Secretary, R. W. Klein, Pan-Am Foods, Inc., Brownsville, Texas.

Membership

Write to nearest regional secretary, if within an area covered by a regional section, or to the Executive Secretary of the Institute, for an application form and information regarding qualifications and classifications.

RESEARCH ON FAT CONVERSION FROM PLANKTON

Anonymous Article published by *Commercial Fisheries Review* 11, No. 5, 37 (May, 1949)

Dr. Richard Harder's pioneer experimentations in the production of fat from oceanic plankton are beginning to assume great importance as a possible source of future nourishment for mankind, according to an April 4 report from the American Consulate at Bremen. Dr. Harder is the dean of the mathematical-scientific faculty at the University of Goettengen. His experiments on the subject, begun during the war and encouraged by the effectiveness of the allied blockade of Europe, have awakened considerable interest in other countries. It may be particularly noticed in this respect that the British Government's Ministry of Food has established an experimental plant for such work at the Microbiological Research Institute at Trinidad.

Plankton, a microscopic type of oceanic plant life, is one of the abundant substances in the sea; it forms the main diet of whales and many fish. Dr. Harder, who is still principally occupied with this problem, is attempting to produce fat directly from the plankton; this would, of course, eliminate the fish or animal as the "middleman" in the production of the fat. He asserts that he has been successful in the basic experimentation. Attempts, however, to utilize his researches for the manufacturing of synthetic margarine and fat, have not yet worked out; Harder is therefore continuing his tests in an attempt to render his processes industrially practicable. No data have been published to date on these researches.—Reprinted in whole—*Commercial Fisheries Abstracts*, December 1949.

WHALEMEAT

Abstract by Maurice E. Stansby of the Fishery Technological Laboratory, Fish and Wildlife Service, Seattle, Washington. Article by Franklin Kidd published in Report of the Food Investigation Board (Great Britain) for the Year 1947, 6 (1949).

During the expedition of the floating factory ship, Balaena, to the Antarctic in 1946-1947, an investigation was made into methods of handling whales for canning for human food. It was found that the usual method of handling whales for making oil led to rapid bacterial decomposition. It was recommended that where whale meat is to be canned for human consumption the Norwegian method of handling the whales be followed. The method consists of bleeding the whales by making an incision in the main blood vessels in the neck. The belly wall is slit to permit sea water to circulate around the intact gut. The meat is kept in good condition when this practice is followed for at least 18 hours and sometimes for 24 hours post mortem.

Analyses were made of certain constituents of the whales. The pigments were found to consist 97 to 100% of myoglobin. Free ammonia was found to rise as the meat spoiled, and a quick method of determining ammonia for use as a freshness test was devised which required only 20 minutes time after sampling.

Commercial Fisheries Abstracts, January 1950.

Regional Section News

(Continued from page 5)

B. W. NIELSON, formerly chemist with the Bureau of Agricultural and Industrial Chemistry's Pasadena, California Laboratory, has resigned to assume charge of Libby, McNeil and Libby's frozen food quality control.

ERNEST C. THOMPSON has retired from the Borden Company after nearly 40 years of service. He entered the company's employ in 1910 as an assistant chemist and was Director of Laboratories from July 1917 until his retirement. For some 20 years he served as chairman of the Standards Committee of the American Dry Milk Institute. In 1946 he received the C. E. Gray Award for his outstanding service in the field of quality control as related to production and quality standards. He is continuing his work as a consultant in food and dairy technology with headquarters at 1792 East 22nd Street, Brooklyn, New York.

ROY H. WALTERS, director of engineering research, General Foods Corporation, has been transferred to the New York Office of the company as technical assistant to the director of research and development.

Meeting of the Council

Proceedings of meeting of the Council, Institute of Food Technologists, held at the Edgewater Beach Hotel, Chicago, May 21, 1950:

The meeting was called to order at 10:00 A.M. by President Fellers.

Present: Forty members and duly authorized alternates.

1. The following reports were received by the Council:

a. REPORT OF EXECUTIVE SECRETARY:

Membership has shown a steady and healthy growth since October 1, 1949. The large number of copies of FOOD TECHNOLOGY returned from the September and October mailings indicated that a complete audit of our membership and circulation lists was in order. This audit was completed in February 13, 1950, and resulted in dropping about 200 errors and duplications found in the lists. The count after these drops was:

Members	2,065
Affiliates	636
Students	85
Non-Member Subscriptions	315
Total Journal Circulation	3,101

On March 4, 1950 the following were dropped from the list:

Deceased (members)	3
Resignations and nonpayment of dues:	
Members	123
Affiliates	74
Total	200

The total dropped during the period October 1, 1949 to March 31, 1950 was approximately 400. The number of new members accepted to April 30, 1950 has more than offset this loss. The count as of April 30th is:

Members	2,111
Affiliates	628
Students	171
Non-Member Subscriptions	319
Total Journal Circulation	3,229

This count is accurate and the lists are apparently correct. There was only one copy of the Journal returned from the April mailing, and that was because the member had moved and left no forwarding address. The new address of this member has since been obtained.

There were in the hands of the Qualifications Committee on April 30th, 50 applications, and new applications are coming in at the rate of about 50 per month. It is desired to pay tribute to the excellent work of Dr. Chace, Dr. Blanck, and Dr. Moyer, of the Qualifications Committee. All applications are now processed within thirty days after receipt by my office, except in those cases where the Committee requests additional information from the applicant, and these cases are quite rare.

It is anticipated that we will show a net gain in members during 1950 of at least 600. Credit for this increase in membership is due Roger Wilson and his Membership Committee. The very attractive letter and folder they prepared and distributed to the entire membership produced most of the new members. If this could be repeated in the fall it is believed that our increase for 1950 will reach 1,000.

The financial status of the Institute is reflected in the following statement, as of April 30, 1950:

ASSETS

Cash, First National Bank of Chicago:		
General Fund	$24,870.88	
Operating Fund	1,878.15	$26,749.03
U. S. Savings Bond Series "F":		
Maturity Value	1,000.00	
Cost	740.00	
Redemption Value 4/30/50		786.00
Accounts Receivable—Garrard Press		275.07
Publications—Back Numbers:		
Inventory at Cost—Per Books	6,029.82	
Less: Reserve for Possible Decline in Value	6,028.82	1.00
Furniture and Fixtures	380.00	
Less: Reserve for Depreciation	95.00	295.00
TOTAL ASSETS		$28,106.10

LIABILITIES

Tax Withheld from Wages	$ 21.00	
Accrued Expenses	46.34	$ 67.34
OPERATING CAPITAL		28,038.76
TOTAL LIABILITIES		$28,106.10

(Continued on page 16)

Abstracts

(Continued from page 12)

213J. Protein preservative.

IVETT, R. W. Assignor to Hercules Powder Company, 2,497,610, Feb. 14, 1950.

An aqueous solution or dispersion of an alkali proteinate containing a preservative for said proteinate selected from the group consisting of a stabilized rosin amine and the salts thereof in an amount within the range of about 0.25% and about 10% of the weight of said proteinate.

214J. Stabilization of eggs.

HALE, C., ELLYN, G., AND SCHAUERT, P. Assignors to Swift & Company, 2,497,817, Feb. 14, 1950.

A process for the treatment of shell eggs which comprises the steps of subjecting such eggs to a heat treatment with a liquid at about 130° F. for about 7 minutes and thereafter subjecting the eggs to a separate heat treatment with a liquid at a temperature of about 136° F. for about 7 minutes, whereby the fresh quality of the eggs is retained to a greater extent than the untreated eggs, bacteria are destroyed, and the albumen is preserved in thick, untinted condition.

215J. Starch treatment.

NEWTON, J. M., AND OUGH, L. D. Assignors to Clinton Industries, Inc., 2,497,838, Feb. 14, 1950.

A method of conditioning starch for enzymic conversion comprising dissolving magnesium phytate in an acid, mixing the solution with an aqueous starch slurry, neutralizing the starch milk to a pH range of 5 to 8 to effect precipitation of the phytate on the starch, and thereafter dewatering and drying the starch.

216J. Infusion package and method of making same.

BAXTER, T. R. Assignor to Standard Brands Inc., 2,498,197, Feb. 21, 1950.

A tea bag, which comprises a sealed web of filter material adapted to hold a quantity of tea, said web being highly permeable and formed of closely interlaced cellulosic fibers and said fibers being bonded by lines of a non-toxic, substantially odorless and tasteless, hot water-repellent lacquer.

217J. Apparatus used in the processing of fruit and vegetable juices and the like.

CROSS, J. A. Assignor to Mojonnier Bros. Co., 2,498,836, Feb. 28, 1950.

In apparatus of the class described, the combination of a vacuum chamber, a liquid supply inlet to said chamber, means in said chamber for fanning out the liquid admitted through said inlet, means for vacuumizing said chamber, diaphragm means for dividing said chamber into an upper part and a lower part, a tubular passageway therebetween, an outlet from the upper part of said chamber communicating therewith at a point just above said diaphragm means, a pasteurized liquid inlet to the lower part of said chamber communicating therewith at a point just below said diaphragm means, flash pasteurizing means taking the liquid from said outlet just above said diaphragm means and after pasteurizing it passing it on to the lower part of said chamber through said pasteurized liquid inlet whereby the gases resulting from said quick pasteurization pass through said tubular passageway into engagement with the fanned out incoming liquid to preheat it, and means for removing the liquid product from the lower portion of said chamber.

218J. Dry pudding compositions and method for preparing the same.

HINZ, H. C., SCHERMERHOR, G. R. SR., AND DORN, F. L. Assignors to American Home Foods, Inc., 2,500,179, Mar. 14, 1950.

A composition for producing a pudding comprising a dry, gelatinized starch prepared by mixing a pudding starch with sufficient sugar to form a frangible product when dried, a chemical gelatinizing agent, and water, which is heat dried and then comminuted to fine grain size, together with a flavoring agent.

219J. Antioxidant.

HALL, L. A. Assignor to The Griffith Laboratories, Inc., 2,500,543, Mar. 14, 1950.

An antioxidant composition comprising a solution of an antioxidant acid ester selected from the group consisting of esters of ascorbic and gallic acid, which ester is soluble in propylene glycol.

NEW IMPROVED

Colloids

can solve your gelling thickening, suspending, or stabilizing problems

Krim-Ko's uniform, established lines of seaplant derivatives—KRIM-KOgel, KRIM-KOloid, KRIM-KOld, KRIM-KO Tendergel and *CARRAGAR*—have proven remarkably effective and dependable in a wide range of food, industrial and pharmaceutical applications. These proven, uniform colloid agents can be as useful to you as they are to some of this country's largest and most successful manufacturers and processors. Tests have proven that they gel, thicken, suspend and stabilize better than most materials heretofore obtainable. Their dependable uniformity makes them especially easy to use.

Send in your problem to our laboratory—no obligation

Krim-Ko maintains a complete well-staffed laboratory devoted exclusively to the solution of problems in this field. If you have a problem involving emulsifying, thickening, suspending or stabilizing—send it in to us. Our laboratory will make their recommendations in confidence—without obligation or cost. Or if you prefer—we will send you sufficient working samples for your own laboratory. Write today.

GLYCERINE

Free booklet tells where it fits in your business!

In hundreds of applications from flavoring to freezing, versatile glycerine is playing an increasingly important role in the food industry . . . and many of these applications can materially improve your product!

The story is told in one informative, up-to-date booklet —"Why Glycerine for Foods?"

Contains compact information on the physical properties of glycerine . . . its origin, development and chemistry . . . grades and their applications. 16 pages of practical, useful data—yours for the asking! Whether you're in management, production, or research . . . an expert on glycerine or thoroughly unfamiliar with the subject—you'll want this informative booklet. Write for your free copy—today!

GLYCERINE PRODUCERS' ASSOCIATION, DEPT. 31

295 Madison Ave. • New York 17, N. Y.

MEETING OF THE COUNCIL

(Continued from page 14)

It is desired to call attention to the large stock of back numbers now on hand. This is more than will ever be disposed of at the present rate of sales. This account will be depreciated by approximately 50% before the next annual meeting. An analysis of the account from November 1, 1949 to April 30, 1950, is as follows:

Inventory November 1, 1949	$5,703.00
Purchase and press overruns, Oct. 1, 1949 to April 30, 1950	710.11
TOTAL	$6,413.11
Total sales Nov. 1, 1949 to April 30, 1950	383.29
Balance on hand April 30, 1950	$6,029.82

This shows a net gain in Inventory of $326.82. Press overruns have been reduced to approximately 125 copies per issue. At the present rate of sales this will be ample to meet demands for an indefinite period. The present procedure of beginning a new member's subscription with the next number of the current volume eliminates the necessity for large overruns and is working out satisfactorily. Of the last 300 new members accepted only one requested that his subscription begin with the first number of the current year.

The sale of single copies and back numbers of Volume III and subsequent volumes at 75c per copy is causing the Institute a net loss of about 25c on single copy orders, and about 10c per copy on larger orders. The Council will be requested to authorize increasing single copy and back number prices to $1.00 domestic and $1.15 foreign.

CHARLES S. LAWRENCE
Executive Secretary

b. REPORT OF TREASURER:

Statement of Receipts and Disbursements
Period Beginning October 1, 1949 and Ended April 30, 1950

	General Fund	Operating Fund	(Elim.)	Combined
BALANCES, OCTOBER 1, 1949:				
(Per Original Transfer)	$14,248.78	$2,500.00		$16,748.78
RECEIPTS FOR PERIOD				
Transfer from General Fund		5,500.00	(5,500.00)	
Dues	8,945.21			8,945.21
Food Technology Periodical	19,949.08			19,949.08
Back Numbers—Periodical	65.64			65.64
Proceeds—Annual Meeting, 1949	5,000.00			5,000.00
Mailing Lists Sold	143.45			143.45
Received for Withholding Tax		21.00		21.00
TOTAL RECEIPTS	$34,103.38	5,521.00		34,124.38
TOTAL—BALANCES AND RECEIPTS	48,352.16	8,021.00	($5,500.00)	50,873.16
DEDUCT—DISBURSEMENTS FOR PERIOD				
Dues Refunds	27.50	101.98		129.48
Discounts and Allowances—Periodical	124.73			124.73
National Headquarters:				
Secretary's Salary	2,800.00			2,800.00
Clerical Hire		1,600.00		1,600.00
Rent		560.00		560.00
Postage, Stationery, Telephone, Telegraph and Miscellaneous	349.31	1,400.64		1,749.95
Office Furniture		40.00		40.00
Travel—Secretary—Cr	(23.38)	472.77		449.39
Employees' Bond		62.50		62.50
"Food Technology" Periodical:				
Printing and Handling, Mailing and Circulation Expense	10,708.18	309.14		11,017.32
Advertising Commissions	1,787.57			1,787.57
Editor's Office	1,625.73	20.79		1,646.52
Special Appropriation for Brochure		273.70		273.70
President's Office Expenses	428.23	499.04		927.27
Advances—Annual Meeting 1950	165.41	538.29		703.70
Purchase—Back Numbers of Periodical		193.50		193.50
Transfer to Operating Fund	5,500.00		(5,500.00)	
Social Security Tax Paid		58.50		58.50
Withholding Tax—Cr	(12.00)	12.00		
TOTAL DISBURSEMENTS	23,481.28	6,142.85	($5,500.00)	24,124.13
BALANCES—APRIL 30, 1950	$24,870.88	$1,878.15		$26,749.03

P. K. BATES, Treasurer

(Continued on page 18)

THE CONTROL OF FILLET CONTAMINATION IN FISH PLANTS

Part II. The Relationship Between the Initial Contamination and the Subsequent Rate of Spoilage

Article by C. H. Castell of the Atlantic Fisheries Experimental Station, Halifax, N. S. Published in Fisheries Research Board of Canada, Progress Reports of the Atlantic Coast Stations No. 41, 10 (1948).

Small fillets were very carefully cut from relatively fresh codfish so as to prevent bacterial contamination and stored in sterile glass containers at 38° F. Commercial fillets taken directly from a cutting table in a fish plant were stored in a similar manner. After 6 days the commercial fillets began to develop typical off-odors and amine values indicative of unpalatability. However, after 18 days there was no off-odor from any of the carefully prepared fillets. At 24 days one fillet was badly spoiled and one other fillet had a sour odor. After 40 days, four of the original six fillets still had not developed any observable changes.

There is usually a very definite relationship between the number of bacteria on a fillet and the length of time it keeps; the greater the contamination, the faster it spoils. However, a great many bacteria which spoil fish rapidly at room temperature are unable to grow at refrigeration temperatures. For iced or refrigerated fish, it is the number of "cold-loving" types that determine the keeping time.

The bacteria that are of marine origin, including those bacteria found in the slime and feces of fish, grow rapidly at temperatures that are not very far above freezing. Because of this fact, the largest number of the most active fish spoiling bacteria are brought into the plant on the fish itself. When the number of these low temperature, fish-spoiling bacteria on fresh fillets are reduced by tenfold, the keeping time at 38° F. is increased by approximately one day. Under commercial conditions at 32° F., much better results could be expected that would more than double the comparable keeping time.

To prove that the principal source of bacteria which contaminate and later spoil fresh fish is the slime and feces of the fish itself, twelve small fillets, very carefully cut from fresh

(Continued on 3rd cover)

REVISING YOUR FORMULA?

Make it a point to try

HURON

MonoSodium Glutamate

AND

Hydrolyzed Vegetable Protein

Monosodium glutamate is widely used to enhance the mild flavors of poultry, fish, meat products and vegetable dishes where the original flavor characteristics of the food are not to be modified. On the other hand, hydrolyzed vegetable protein, when used in sufficient amounts, adds its distinctive meat broth character and is a dominant flavor in the finished product—meat soups, stews, gravies and highly seasoned meats are typical of such use. However, at lower percentages, the same HVP adds desirable undertones of flavor for greater eating enjoyment without dominating the flavor character of the food. Detailed data and working samples will be supplied for tests on request.

Five years of intensive research preceded the production of the first monosodium glutamate and hydrolyzed vegetable protein by the Huron Milling Company in 1934. Behind every pound of Huron MSG and HVP shipped stands a 50-year record for dependability—dependability both for constant uniformity of products and of service to customers.

THE HURON MILLING COMPANY

9 Park Place, New York 7, N. Y.

160 E. Illinois St.
Chicago 11, Ill.

383 Brannan St.
San Francisco 7, Cal.

MEETING OF THE COUNCIL

(Continued from page 16)

2. It was moved, seconded and carried that the National Employment Program be handled by the Executive Secretary of the Institute, and that he be authorized to work out the details regarding the allocating of space in FOOD TECHNOLOGY for the insertion of help wanted and position wanted notices, help wanted notices to be run for employers without charge, and position wanted notices to be run for Institute members at a cost of $2.00 per insertion; that an amount not to exceed $250.00 may be expended for circularizing the food industries to notify firms of the availability of this service.

3. It was moved, seconded and carried that the dues for affiliate members be raised to $7.50 per year.

4. It was moved, seconded and carried that the following budget, to cover the year May 1, 1950 to April 30, 1951, be adopted:

PROJECTED EXPENDITURES

NATIONAL HEADQUARTERS:		
Office Rent, Telephone and Telegraph	$ 1,500.00	
Clerical Hire	3,000.00	
Stationery, Printing and Postage	2,500.00	
Office Furniture and Equipment	1,125.00	
Secretary's Salary	4,800.00	
Travel and Miscellaneous	1,000.00	
TOTAL		$13,925.00
FOOD RESEARCH:		
Publishing and Distribution, Jan. 1, 1951 to April 30, 1951		4,000.00
FOOD TECHNOLOGY:		
Printing and Mailing	$21,600.00	
Circulation Expense—Subscription Lists, Addressograph Plates, etc.	1,500.00	
Advertising Commissions	5,400.00	
Agency Discounts	3,240.00	
Cash Discounts	432.00	
Editor's Expense	3,600.00	
TOTAL		35,772.00
PRESIDENT'S OFFICE		600.00
CONTINGENCIES		1,200.00
TOTAL		$55,497.00

PROJECTED INCOME

Members' Dues	$21,000.00	
Student Members' Dues	500.00	
Non-Member Subscriptions to FOOD TECHNOLOGY	2,250.00	
Sale Single Copies and Back Numbers	375.00	
Sale of Mailing Lists	150.00	
Accounts Received for Adv. and Subs.	1,225.00	
Gross Advertising Billing	22,500.00	
Income from Annual Meeting	2,000.00	
Income from FOOD RESEARCH	4,000.00	
Income from Membership Increase	2,400.00	
TOTAL		$56,400.00
CASH ON HAND		25,000.00
TOTAL		81,400.00
ESTIMATED BALANCE ON HAND AT END OF YEAR		$25,903.00

5. It was moved, seconded and carried that in the event a new budget is not approved prior to the expiration of the period covered by this budget, expenditures may be continued at the same rate on a month to month basis until the approval of the next budget.

6. It was moved, seconded and carried that the items of expenditure covering FOOD TECHNOLOGY and FOOD RESEARCH may be increased proportionately as advertising and subscription income exceeds the figures shown under projected income.

7. It was moved, seconded and carried that the publication of FOOD RESEARCH be taken over as of June 1, 1950, but that financial responsibility for FOOD RESEARCH be assumed January 1, 1951, which is the beginning of the new subscription year, details of the transfer and contract for printing to be negotiated with The Garrard Press by the Executive Secretary, said contract to become effective when approved by the President of the Institute; the agreement for taking over FOOD RESEARCH to include the provision that The Garrard Press retain ownership of back numbers to include the current volume; that if at any time The Garrard Press decides to discontinue sale of back numbers, that these would be made available to the Institute at not more than 30c per copy; and that the editorship of the two journals, FOOD TECHNOLOGY and FOOD RESEARCH, be centered in one Editor-in-Chief, with two Editorial Boards, this status to remain until such time as the Editor-in-Chief and Editorial Boards recommend otherwise.

8. It was moved, seconded and carried that the printing over-run of FOOD TECHNOLOGY be held at approximately 200 copies per isue, until such time as experience indicates a change desirable.

9. It was moved, seconded and carried that the subscription rate of FOOD RESEARCH to members of the Institute be $4.50 per year, and that a combination rate for FOOD TECHNOLOGY and FOOD RESEARCH for nonmembers be $12.00 per year.

10. It was moved, seconded and carried that the price of single copies of FOOD TECHNOLOGY beginning with Volume III, January, 1949, be increased to $1.00 domestic and $1.15 foreign.

11. It was moved, seconded and carried that the Executive Secretary be designated Business Manager for FOOD TECHNOLOGY and FOOD RESEARCH, and that he be authoribed to negotiate advertising contracts for both journals, such contracts to be subject to the approval of the President before becoming effective.

12. The Council, with regret, accepted the resignation of Dr. C. Olin Ball as editor of FOOD TECHNOLOGY. The Council appointed Dr. Ball editor emeritus of FOOD TECHNOLOGY, and in expressing their appreciation for his excellent work extended a vote of thanks, and directed that the secretary prepare a suitable letter of appreciation to Dr. Ball and that a copy of this letter be sent to the president of Rutgers University.

13. After due consideration of a number of individuals, the Council, by written ballot, elected Dr. Z. I. Kertesz Editor-in-Chief of FOOD TECHNOLOGY and FOOD RESEARCH.

14. The Council extended a vote of thanks to Dr. Fred E. Tanner, Editor of FOOD RESEARCH for the past 14 years, and directed that he receive a life subscription to FOOD RESEARCH.

15. It was moved, seconded and carried that the 1951 annual meeting of the Institute be held in New York during the week of June 17th.

16. It was moved, seconded and carried that the 1952 annual meeting of the Institute be held at Grand Rapids, Michigan, during the week of June 8th.

17. It was moved, seconded and carried that the 1954 annual meeting of the Institute be held at Los Angeles during the fourth week of June.

18. It was moved, seconded and carried that Charles S. Lawrence be appointed Executive Secretary for the ensuing year.

19. It was moved, seconded and carried that Philip K. Bates be appointed Treasurer for the ensuing year.

20. It was moved, seconded and carried that the President-Elect be empowered to select his committees without Council approval.

21. It was moved, seconded and carried that the Chairman of the various committees of the Chicago Section concerned with the organization and conduct of the 1950 meeting be commended for their excellent work in organizing this convention.

22. It was moved, seconded and carried that the action of the Qualifications Committee in the classification and election of members during the past year be approved. This committee was given a rising vote of thanks for their very fine work during the past year.

23. The Executive Secretary presented the report of the Membership Committee, which showed a net gain of more than 200 members since January 1, 1950.

24. The Texas Food Technologists presented a petition for a Charter as a Regional Section. It was moved, seconded and carried that the Texas Regional Section be chartered as Regional Section No. 18.

25. It was moved, seconded and carried that the Executive Committee be empowered to act for the Council on the petition of the Pittsburgh Section when that petition is submitted.

26. It was moved, seconded and carried that the petitions for Student Chapters be referred to the Executive Committee, with power to act at such time as these groups have complied with the requirements of the Constitution.

27. It was moved, seconded and carried that the President appoint a Committee to investigate the status of the Technical Committees and recommend a future policy.

28. The Maryland Section presented the following resolution:

"BE IT RESOLVED, That the Institute of Food Technologists seek closer cooperation with the Bureau of Agriculture and Industrial Chemistry of the United States Department of Agriculture, by means of a National Committee selected for the express purpose of inviting exchange of views and problems and the dissemination of information to the Institute and its members."

It was moved, second and carried that the Maryland resolution be referred to the board of editors of FOOD TECHNOLOGY for recommendations as to possible action.

29. The reports of the following listed committees were received by the Council:

Committee on Programs, by Lloyd A. Hall, Chairman.

National Publicity Committee, by Milton E. Parker, Chairman.

Committee on Regional Sections, by J. L. Heid, Chairman.

Committee on Student Chapters, by Arthur Levine, Chairman.

Committee on Military Affairs, by R. A. Isker, Chairman.

Committee on Local Arrangements for 1950 Meeting, by Charles L. Smith, Chairman.

Definite action on these reports was deferred until a later date.

30. The Council received the report of the editor of FOOD TECHNOLOGY.

31. The Council received from its Executive Committee a draft of a new Constitution for the Institute and a report from the committee stating that a new Constitution was necessary for two reasons: first, to meet the legal requirements for incorporation, and second, to comply with the provisions of the Internal Revenue Act for non-profit organizations. This Constitution had been prepared by the Constitution Committee, distributed to members of the Council, and their comments requested. Upon receipt of these comments and suggestions the original draft was rewritten by the Committee on Constitutions and then submitted to the Executive Committee. This Committee studied the document in detail, recommended certain changes, and submitted it to the Council. The Articles and Sections of this Constitution were voted on individually by the Council, and the Executive Secretary was directed to prepare a draft of the document as approved for submission to the members, provided such action is approved at the business meeting of the Institute to be held on Wednesday, May 24, 1950.

32. The Council adjourned at 5:30 P.M. Dr. Fellers took advantage of this occasion to express to the Council his appreciation for the loyal and able assistance that he had received during the past year, and especially at this meeting.

CHARLES S. LAWRENCE
Executive Secretary

BUSINESS MEETING
Institute of Food Technologists

Proceedings of annual business meeting held at the Edgewater Beach Hotel May 24, 1950:

President Carl R. Fellers presiding, called the meeting to order at 12:45 P.M.

A quorum was present.

1. The president made a brief statement of the progress of the Institute during the past year, and presented to the meeting the Chairmen of the various committees responsible for the Tenth Annual Conference.

2. The president announced the election of national officers for the coming year as follows:

President-Elect: Dr. Charles N. Frey, Standard Brands.

Councilors-at-Large: Dr. R. Adams Dutcher, Pennsylvania State College; Dr. H. R. Kraybill, American Meat Inst. Foundation; Dr. E. M. Mrak, University of California; Dr. Aksel Olsen, General Foods Corp.; Dr. Carl S. Pederson, New York Agric. Exp. Sta.

3. The president announced the appointment of the following officers for the coming year:

Executive Secretary: Charles S. Lawrence, Chicago.

Treasurer: Dr. Philip K. Bates, Los Angeles.

4. The president presented to the meeting a recommendation from the Council that the new constitution drafted by the Constitution Commitee and approved by the Council, be submitted to the members for mail ballot. It was moved, seconded and carried that this be done.

5. The executive secretary and the treasurer presented brief financial reports at the meeting.

6. The following resolution was moved by Aksel Olsen, seconded by B. S. Clark, and carried by unanimous vote:

"In view of the fact that this is the first annual meeting at which we have had the services of an executive Secretary, and also the first business meeting at which the members have received comprehensive information about the many Council actions which are of interest to all members, and in view of the many other services rendered to the Institute and its members since the executive secretary took office just a few months ago,

"Be It Resolved, That the Institute of Food Technologists extend its sincere appreciation to Colonel Charles S. Lawrence."

7. The meeting adjourned at 2:10 P.M.

Notes and Letters

(Continued from page 10)

values were 616 mg. of phosphorus per 100 g. for the manure-plot tomatoes as compared with 530 mg., 564 mg., and 480 mg. for the control-, straw-, and Servall-plot tomatoes; and 5.4 g. of potassium per 100 g. of tomatoes from the manure plot as compared with 3.0 g., 3.5 g., and 4.0 g. of potassium found in the tomatoes grown on the control, straw, and Servall plots respectively.

Arthur D. Holmes
Robert T. Wetherbee
C. Tyson Smith
William H. Lachman
University of Massachusetts, Amherst.

LITERATURE CITED

1. Association of Official Agricultural Chemists. Official and Tentative Methods of Analysis of the Association of Official Agricultural Chemists. Sixth Ed., Vol. 1 (1945), Washington, D. C.

2. Holmes, Arthur D., Smith, C. Tyson, Rogers, Charles, and Lachman, William H. Effect of different mulches upon the nutritive value of tomatoes. *Soil Sci.*, **65**, 471 (1948).

3. Holmes, Arthur D. Riboflavin content of immature Massachusetts lettuce. *Food Research* **9**, 121 (1944).

PHYSICS OF THE LOW-TEMPERATURE VACUUM DRYING PROCESS. PART I

Article by A. J. Ede, reprinted in part from *Journal of the Society of Chemical Industry* **68**, No. 11, 330 (November, 1949).

An account is given of some of the more purely physical aspects of the process of drying sensitive materials *in vacuo* at a low temperature. A relation is established on theoretical and experimental grounds, between the mean air pressure in the desiccator, the rate of drying, and the difference between the vapour pressures at the evaporator and condenser. Considerations arising from the shape and size of the desiccator, evaporator and condenser are discussed.

The process whereby sensitive materials are dried in the frozen state in a moderately high vacuum is now well established and has been used on a commercial scale for the preparation of dried blood plasma and penicillin. In view of its high cost it has not been applied to foodstuffs to any considerable extent, although the results are in most cases superior to those of any other method of drying, and rival those of quick-freezing. However, good results have been obtained with foodstuffs at higher temperatures and pressures than those usually considered necessary; this paper describes some experiments and observations on the process under such conditions which are independent of the material being dried; a second paper will describe the results obtained with green peas.

The process, as it will be considered here, consists essentially in the sublimation of the ice contained in the frozen material (the "evaporator") and its condensation as a layer of ice upon a cold surface (the "condenser"); it takes place in a vessel known as the "desiccator," the pressure in which is very considerably reduced. The rate of drying is controlled almost entirely by the rate at which the evaporator is heated, since apart from losses due to radiation and conduction, which are very small until the concluding state is reached, all the heat applied must be used as latent heat of sublimation.

In order that the final product shall be of satisfactory quality, an upper limit must be fixed to the temperature of the material at each stage of the process. Since the principal factor influencing the temperature of the evaporator is the vapour pressure around it, one requirement of a satisfactory plant is that the desired rate of drying may take place with a sufficiently low vapour pressure at the evaporator.—*Commercial Fisheries Abstracts*, March, 1950.

FRONT PAGE STORY

THE WALL STREET JOURNAL

May 8, 1950

Chickens Made Tastier By Packer's Injection Of Flavor-Enhancer

• • •

Miami Poultryman Does Trick With MSG; It May Also Be Tried on Steaks, Chops

By John A. McWethy
Staff Correspondent of The Wall Street Journal

CHICAGO—A Florida poultry processor has come up with a new idea for making chickens tastier. He injects a seasoning agent into the dressed birds before marketing them.

Ac'cent!

Eugene D. Ellis of Miami has discovered that an injection of MSG, the centuries-old Chinese flavor-enhancer called monosodium glutamate, will make even a cold storage bird taste better than one cooked fresh from the barnyard.

And apparently chicken fanciers like what he's doing. Before he began using the new process, Mr Ellis' firm, Red Crest Poultry, Inc., sold about 20,000 pounds of chicken a week; now it's selling more than 60,000 pounds a week.

Note this! 300% increase!

Proof Is in the Eating

"To sell Miami grocers on my product," Mr Ellis recounted here the other day, "I bought a portable electric frying unit. I'd persuade the grocer to give me a piece of his choicest chicken. Then I'd fry that along with a sample of mine. I've yet to have anyone dispute that my chicken was the better."

By itself, MSG tastes merely slightly salty but when combined with other foods the saltiness disappears and the natural flavor of the meat, soup or vegetables with which it is used is accentuated.

He "stitches-in" Ac'cent

Taking a leaf from the meat packers, who pump pickling solution into hams through a hollow needle, Mr. Ellis injects an MSG solution containing gelatin into a chicken at six or seven places. Within five minutes, he says, it has spread uniformly through the bird.

Chemical Firm Buys Process

The producers of Ac'cent

The International Minerals & Chemical Corp., the largest producer of MSG, is so impressed with the results that it has hired Mr. Ellis to show other poultry plants around the country how to use the process. They will be permitted to use it without charge.

"We think accenting the flavor of chicken with MSG is the most significant new development ever offered to the $2,226 million poultry industry," says J. R. T. Bishop, International Mineral's vice president. "If it goes over as well elsewhere as it has in Florida, the new process might easily increase chicken consumption 5% to 10%."

Low cost!

International figures one penny's worth of MSG is sufficient to treat a three pound bird, according to Dr. B. F. Buchanan, technical service director. One pound, which sells in quantity for $1.56, is enough for 500 pounds of poultry. The machines for injecting MSG into the birds cost about $75—they're the same as the packers use on ham except for a slightly different injection needle. One man can inject MSG into about 2,500 chickens a day, Dr. Buchanan figures.

Simple, quick method!

And here's what the *grocers* did with these extraordinary chickens prepared with Ac'cent

One meat dept. buyer said: "We've never had a complaint on these chickens. We handle them exclusively, and once sold 19,000 pounds in only three days."

The president of a supermarket said: "Our customers like these chickens. We're willing to pay a little more for them. We sell 15,000 to 20,000 a week."

Another meat dept. manager said: "People comment on the appearance of these chickens and their superior flavor. They tell us our birds are the best in town."

HOTELS PRAISE THEM TOO

The meat buyer of a hotel supply company said: "We've never used chickens as fine as these. The hotels we serve are very happy with them." Another said: "Our hotel customers ask specifically for these chickens. They're exceptional."

GET THE FACTS BEHIND THIS STORY!

Let us tell you, at no obligation whatever, about this new method of "stitching-in" Ac'cent for better-tasting, better-looking, better-selling chickens. You'll find it interesting . . . *very* interesting.

Amino Products Division
International Minerals & Chemical Corp.
20 North Wacker Drive, Chicago 6, Ill.

the D&O

detector says

"look to

SPISORESINS"

The newest advance in the art of flavoring

SPISORESINS, the result of six years of research and development in the D&O Laboratories, are now offered to food manufacturers seeking the best flavoring ingredients. SPISORESINS are special extractions of dry spices and contain all of the flavoring qualities that are in the spices themselves, and are not to be confused with essential oils.

SPISORESINS of all important spices such as Allspice, Cinnamon, Clove, Garlic, Nutmeg, Onion, Black Pepper and Sage are available. The Dodge & Olcott Laboratories have also developed sixty SPISORESINS MIXTURES including every important flavor used in the meat processing industry. Bologna, Braunschweiger, Deviled Ham, Liverwurst, Turkey Loaf and Salami illustrate the complete flavor range of SPISORESINS.

SPISORESINS, in addition to being paramount flavors, are easy to use. SPISORESINS are even-spreading of uniform strength, properly balanced and are free from the bacteria, molds and yeast spores frequently found in dry spices.

Practical suggestions for the use of SPISORESINS will be sent on request.

"D&O News", the Dodge & Olcott bi-monthly publication, is especially planned to provide timely and useful information on matters essential to the conduct of your business. Ask to be put on the mailing list.

DODGE & OLCOTT, INC.

180 Varick Street • New York 14, N. Y.

ATLANTA • BOSTON • CHICAGO • CINCINNATI • DALLAS
LOS ANGELES • PHILADELPHIA • ST. LOUIS • SAN FRANCISCO

ESSENTIAL OILS • AROMATIC CHEMICALS
PERFUME BASES • VANILLA • FLAVOR BASES

Book Review

FOOD FOR FIFTY. By Sina Faye Fowler and Bessie Brooks West. Third Edition. John Wiley & Sons, Inc. 1950. Price $4.50.

An interesting handbook for those involved in serving food to larger groups. The book contains quite a few tables of general information, together with quantity recipes covering the entire cuisine. A discussion of menu planning, serving meals for special occasions, and serving teas and buffets, is also included.

J. A. DUNN.

THE HOME BOOK OF FRENCH COOKERY. By Mme. Germaine Carter. Doubleday Inc. 1950. 278 pp. Price $2.95.

This recipe book was written by a French woman during her two years of internment in a German prison camp. She is the wife of the British consul in Pas de Calais. The foreword is written by T. C. Rapp, British Ambassador to Mexico, who was imprisoned with Mme. Carter and her husband. The book includes not only traditional French recipes which were handed down in the author's family but many which she has collected and used for years. Included are recipes for hors-d'oeuvre, soups, entrees, fish and sea food, game and poultry, meats, sauces, pâtés, vegetables, salads, desserts, fruit, ice creams, sandwiches, sweetmeats and candies, and beverages. One chapter, "Menus for All Seasons," gives the menus in both English and French. The menus are "from Mme. Carter's Home."

Although the publisher's description on the dust cover reads "a cookbook which is designed specifically so that the American cook—beginner or accomplished artist—can follow it with a minimum of effort," this is not entirely possible for best results. For example, recipes for pastry call for butter or margarine instead of a hydrogenated fat or lard, and call for baking at 500° F. instead of the usual 450° F. The cooking times given for celery, cabbage, and red cabbage are considerably longer than those considered acceptable in most sections of this country at the present time. Directions are given for *basting* roast turkey, chicken, venison and partridge frequently. Water is to be added to roast chicken. Beef and fish are "boiled."

The "accomplished cook" could easily make corrections for these obviously outdated directions and thoroughly enjoy the many unusual, enticing recipes. "The Home Book of French Cookery" is a book for collectors of special recipe books and is valuable for students of world food customs.

FAITH FENTON.

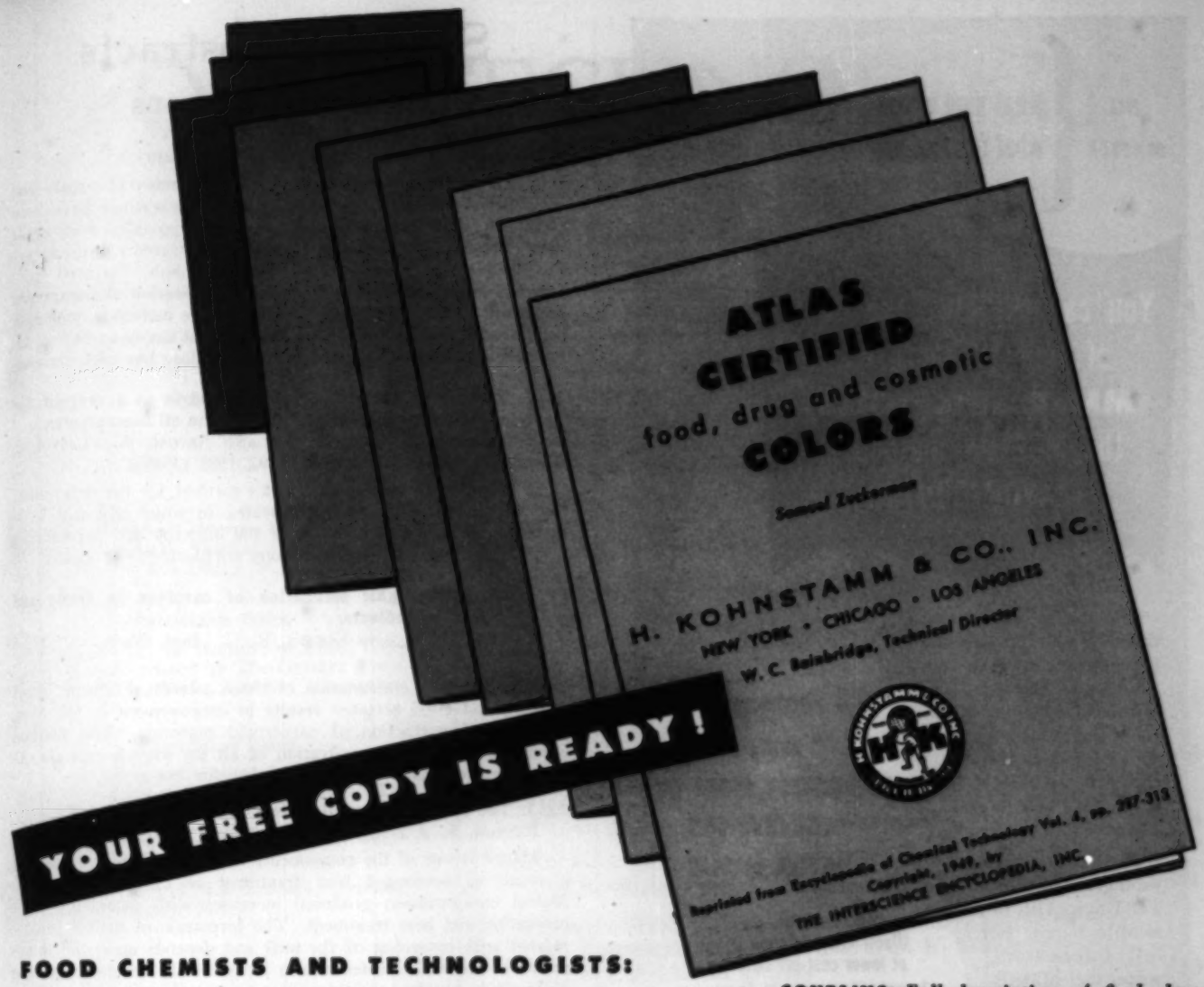
PROFESSIONAL DIRECTORY

SALES REPRESENTATION AVAILABLE

Over 30 years' experience selling basic and technical products to food manufacturers. Food technologist on staff covering Metropolitan New York and Connecticut.

INTERNATIONAL FOOD BROKERS

184 N. 8th St., Brooklyn 11, New York


ATLAS
CERTIFIED
food, drug and cosmetic
COLORS
Samuel Zuckerman
H. KOHNSTAMM & CO., INC.
NEW YORK • CHICAGO • LOS ANGELES
W. C. Balabridge, Technical Director
YOUR FREE COPY IS READY!
Reprinted from Encyclopedia of Chemical Technology Vol. 4, pp. 297-313
Copyright, 1949, by
THE INTERSCIENCE ENCYCLOPEDIA, INC.

FOOD CHEMISTS AND TECHNOLOGISTS:

Your information on the vital subject of colors is not complete without this booklet, *a copy of which awaits your request.*

These 26 pages of technical data were prepared by our staff for the new edition of "Encyclopedia of Chemical Technology". Now in handy reprint form, this valuable information is being distributed to friends of H. Kohnstamm & Co.

The booklet is yours for the asking . . . just attach the coupon below to your company letterhead . . .

We manufacture flavors and colors especially formulated for every type of food product. Perhaps our laboratories can show you how the right color and flavor can increase the saleability of your product.

FIRST PRODUCERS OF CERTIFIED COLORS

KOHNSTAMM & CO., Inc.

89 PARK PLACE, NEW YORK 7 — 11-13 E. ILLINOIS ST., CHICAGO 11

4735 DISTRICT BLVD., LOS ANGELES 11

ATLANTA • BALTIMORE • BOSTON • CINCINNATI • CLEVELAND • DALLAS • DETROIT
HOUSTON • INDIANAPOLIS • KANSAS CITY, MO. • MINNEAPOLIS • NEW ORLEANS
OMAHA • PHILADELPHIA • PITTSBURGH • ST. LOUIS • SAN FRANCISCO

CONTAINS: ***Full description of food, drug and cosmetic color regulations • Tables of solubility • Tables of fastness • Blend formulas for certified colors • Table of certified colors (128) with official, trade and chemical names, manufacturing process, shade and typical applications.***

One Hundredth *Anniversary*

Clip to your letterhead please.

H. KOHNSTAMM & CO., Inc.
89 Park Place, New York 7, N. Y. Dept. T-5

Please send me your booklet on Certified Colors.

NAME OF COMPANY_____

ADDRESS_____

YOUR NAME_____

TITLE_____